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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/647,912	08/25/2003	Helmut Thoma	Westphal.7276	2331
50811	7590	03/04/2009		
O'Shea Getz P.C. 1500 MAIN ST. SUITE 912 SPRINGFIELD, MA 01115			EXAMINER BOES, TERENCE	
			ART UNIT 3656	PAPER NUMBER
			MAIL DATE 03/04/2009	DELIVERY MODE PAPER

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/647,912
Filing Date: August 25, 2003
Appellant(s): THOMA, HELMUT

Patrick J. O'Shea
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 01/05/2009 appealing from the Office action mailed 09/25/2007.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The Appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The Appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1, 11-14, 18 and 19, as best understood, are rejected under 35

U.S.C. 102(b) as being anticipated by Shinichi JP 59117951.

Shinichi discloses:

- a first gear (13) having a plurality of first gear teeth located along the radial periphery of the first gear;
- a second gear (12) having a plurality of second gear teeth located along the radial periphery of the second gear
- where the first gear is constructed from a first material and the second gear is constructed from a second material different than the first material (see summary of invention, “each gear is made of a combination of two gears having the same tooth shape and made of a material with the conventional rigidity for one of them and a wear-proof material with good elasticity for the other”)
- wherein the first and second gears are disposed co-axially adjacent one another on the shaft (gears are shown adjacent, shaft is inherent if not disclosed, see shaft in figure 4b):
- where the elasticity of the first gear is greater than that of the second gear (see summary of invention, also see Constitution: gear 12 made from S45C (this is carbon steel), and gear 13 made from an elastic material),

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- where the strength of the second gear is greater than that of the first gear (see summary of invention, also see Brief description of the figures “ 11, 12- Gear made of rigid material, 13- Gear made of elastic material),
- wherein the first gear and the second gear are arranged co-axially on the shaft axially detached from each other (see figures 3 and 4,) such that the first and second gears rotate in the same direction relative to the shaft and independently, of each other (see abstract).
- where the first gear has a greater elasticity than that of the second gear, such that in the absence of a certain amount of load the first gear is engaged with the cooperating gear and the second gear is disengaged from the cooperating gear and in the presence of a certain amount of torque both the first and second gears engage(s) the cooperating gear (see abstract).
- wherein the first gear teeth and the second gear teeth are helically arranged adjacent to one another (see figure 4C).
- wherein the first gear teeth and the second gear teeth are helically arranged offset to one another (see figures 3 and 4C).
- wherein the first material comprises plastic and second material is metallic (see summary of invention, also see Constitution: gear 12 made from S45C (this is carbon steel), and gear 13 made from an elastic material).

(10) Response to Argument

Appellant argues “Shinichi is incapable of anticipating claim 1. Specifically, upon a fair and proper reading, Shinichi fails to disclose the claimed feature of ‘*wherein the first gear and the second gear are arranged on the shaft axially detached from each other*’. (cl. 1, emphasis added). This feature recites structure and not function. In contrast, in Shinichi the gears are illustrated in FIGs. 4a-4d as integral units. The English translation of Shinichi explicitly discloses that gears 12, 13 are prepared ‘*as an integral unit.*’ (See the "Constitution" paragraph of the Abstract; emphasis added). Shinichi also discloses that the gears 12, 13 are combined ‘*so as to integrally use the gears as one gear.*’ (See the "Purpose" paragraph of the Abstract; emphasis added). Further, Shinichi discloses that ‘*gear (13) made of an elastic material with a larger tooth thickness than that of gear (12) is integrated with said gear (12) **to form a gear.***’ (See page 2 of the full translation of Shinichi, the "Application examples" section, first paragraph). Thus, Shinichi explicitly states that the two gears 12, 13 are integrated to form **a single gear**. As a result, Shinichi does not teach or suggest that the two gears 12, 13 are arranged on the shaft axially detached from each other, as in the present claimed invention”.

In response, the fact that the two admitted gears (12 and 13) are “integrally **[used]** as one gear” does not prove that the gears are not “axially detached” as claimed. Webster’s II New Riverside Dictionary defines detached as: separate. Clearly the two admitted gears are separate as they are given separate reference characters and discussed separately. In fact Shinichi discloses “two gears” (see Summary of

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invention paragraph, line 1). Furthermore, the gears function separately as recited in the constitution: "When the gears 11, 12 are meshed, the gear 13 engages with the gear 11 always earlier before the gear 12 engages with the gear 11 by a distance of the larger thickness and rotates always in close contact". The mere fact that the two gears function together does not show that the two gears are not axially detached. In fact, the gears of Shinichi could not function in such a way if they were attached, thus proving the gears are indeed "detached" as claimed. Furthermore, Shinichi's figure 4 shows a distinct separation, illustrating that the gears are axially detached. Furthermore, applicant's figures 1-3 show gears immediately adjacent, just as Shinichi's figure 4 shows the two admitted gears immediately adjacent. Furthermore, applicant's invention functions in the exact same way as described in the abstract: "...only the first gear (1), while having the same modulus, comes into engagement with another gear in normal operation. As the load increases, the first gear (1) made of plastic yields in the elastic range so that now the second gear (2) made of metal also comes into engagement in order to accept the forces occurring...".

The examiner shall now respond to the individual points of rebuttal presented in the appeal brief filed 09/12/2008.

- *"However, this argument fails because something cannot be "integral" and "separate" or "detached" at the same time. The Merriam-Webster Online Dictionary defines "integral" as "formed as a unit with another part" or "composed of integral parts". That same dictionary defines "separate" as "set or kept apart: detached". Thus, the two gears 12, 13 cannot be*

"formed as a unit" (i.e., single gear as taught by Shinichi) and also be "set apart" or "detached" at the same time - they are the opposite physical structural conditions. In addition, the additional language in Shinichi noted above that "the gears are combined" and that the gears "are prepared as an integral unit" further strengthens the argument that the language where the gears "are integrally used as one gear" proves that the gears are indeed detached from each other." (Appeal Brief Pg 10.). Appellant's rebuttal fails because something **can** be both "integral" and "separate" or "detached at the same time". It is clear from the context of the Shinichi reference that the meaning of the term "integral" is not monolithic, as implied by Appellant, but rather, merely asserts that the gears can function together (see Shinichi abstract "so as to integrally use the gears as one gear"). Here it is clear that **two gears** are made integral merely by their function in that the gears are used together. It is also clear from a reading of Appellant's instant application that Appellant's claimed invention also integrates **two gears** (12 and 14 see figures 1-3) into a singular "gear arrangement". In fact the first sentence in the summary of the invention clearly describes the invention as "Gear arrangement having first and second gears". Shinichi discloses identical structure (gears 12 and 13). Clearly the rebuttal fails for the reasons articulated above and additionally, Appellant's own invention also "integrates" "first and second gears" into a "gear arrangement". So it is clear that something can be both "integral"

and "separate" or "detached" at the same time, as indeed both Appellant's claimed invention and the apparatus disclosed by Shinichi are. As for the claim language "detached"... here the Appellant is clearly using a broad interpretation of the term "detached". Here, it is helpful to utilize the context of the instant application to decipher the meaning of the claim term "detached". Referring to figures 1-4 of the instant application, Appellant clearly shows the gears (claimed as "axially detached"), as immediately adjacent to each other, that is to say abutting each other. Therefore, it is clear that the claimed term "detached" is meant to be interpreted broadly, and to encompass at least (as shown in Appellant's figures), gears that are immediately adjacent or abutting each other. Now, referring to Shinichi figure 4, the gears of Shinichi are also shown immediately adjacent, and abutting each other, but are "detached" in the sense that they rotate relative to each other, as in Appellant's claimed invention. Upon examination of both Shinichi figures 3 and 4 and Appellant's figures 1-4, it is clear that no structural distinction can be ascertained, as both show gears which are immediately adjacent and abutting each other, and both are described as gears rotating relative to each other. In fact, the Appellant has also conceded this point, as quoted above, *"In addition, the additional language in Shinichi noted above that 'the gears are combined' and that the gears 'are prepared as an integral unit' further strengthens the argument that the language where the gears 'are integrally used as*

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one gear' proves that the gears are indeed detached from each other."

That is to say, the Appellant **concedes** the gears of applied reference (Shinichi) **"are indeed detached from each other"** (Appeal Brief filed 09/12/2008, Pg. 10, end of first bullet point). This is the pertinent claim language in question. The examiner asserts the Appellant's entire basis for argument seems to rely and fail on this point, as Appellant has admitted to, agreed, and conceded that the gears of Shinichi "are indeed detached from each other". In conclusion, Appellant's argument has not only been clearly shown to fail, as evidenced by both the prior art and Appellant's own disclosure, but has in fact, also been conceded.

- *"However, assigning the gears 12, 13 separate reference characters and discussing them separately does not lead to the conclusion that the two gears 12, 13 must be physically detached from each other. Assigning separate reference numbers to the gears 12, 13 and discussing them separately only serves to assist one reading the patent in better understanding the characteristics of each gear 12, 13. The presence of other language in Shinichi noted above controls the physical relationship of the gears 12, 13; that is, where Shinichi explicitly discloses that the gears 12, 13 are prepared 'as an integral unit'; where Shinichi discloses that the gears 12, 13 are combined 'so as to integrally use the gears as one gear'; and where Shinichi discloses that "gear (13) made of an elastic material with a larger tooth thickness that that of gear (12) is integrated*

with said gear (12) to form a gear.” Here again, Appellant’s rebuttal fails.

At the outset, it must be noted that in the rebuttal Appellant has failed to cite any actual claim language. The Appellant has simply tried to create a distinction between the prior art and the claimed invention where one does not exist. To summarize, Appellant has argued that the **gears** (with emphasize the plurality) of Shinichi are “integral” , or “one gear” or “integrated...to form a gear”. For the most part the examiner agrees. The **gears** (plurality emphasized) of Shinichi are integrated to form a gear, however it is also clear that the instant invention of Appellant **also** shares these characteristics. Again turning to Appellant’s Summary of Invention Line 1, "Gear arrangement having first and second gears", no distinction between the prior art and the instant invention can be ascertained. Appellant has essentially argues that the prior art cannot anticipate the claims, because the gears of Shinichi are integrated with each other to function together. However, this argument clearly fails for 2 reasons. 1. Appellant has no claim terminology drawn to “integral” or the lack thereof. 2. Appellant’s own instant invention also consists of two gears (12 and 14) integrated to function as one. See for example, Detailed Description of the Invention, Pg. 4/ Lns. 19 -21, stating “Fig. 2 shows an enlarged detail from Fig. 1. in which the different tothing of the **two gears** 12 and 14 is emphasized. The second gear 14 does not come into engagement until the first gear 12 made of plastic yields in the elastic range.” The

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examiner notes this statement by the Appellant clearly shows **Appellants own two gears are also integrated to function as one**. In addition, the prior art directly parallels, and indeed function in the exact same way as the prior art. See Shinichi (Constitution), "When the gears 11, 12 are meshed, the gear 13 engages with the gear 11 always earlier before the gear 12 engages with the gear 11 by a distance of the larger thickness and rotates always in close contact". Again, although Appellant on this point is not particularly pointing to claim language, it has been shown that no distinction exists between the prior art and the claimed invention.

- *"However, the cited portion of Shinichi above discloses the function of the gears 11, 12, 13 and not the structure of these gears. This functional language is at best inconclusive as to the structure and certainly does not prove that the two gears 12, 13 are not axially detached from each other. Again, Shinichi contains other language noted above that clearly disclose the structural relationship that gears 12, 13 are a single gear."* In this the examiner again agrees with Appellant, that is to say, the examiner agrees **the gears of Shinichi are indeed axially detached**. In addition, it is clear that Appellant is intending to rely on the structural limitation of "axially detached". However, one of ordinary skill in the art would not, at first, recognize Appellant's own gears as being "axially detached" (as Appellants drawings clearly show the gears to be immediately adjacent). Therefore, one of ordinary skill must look further, in an attempt to

ascertain the intended meaning of the term "detached". In this case one is left to ask, how are Appellant's gears "axially detached". As discussed above, and expanded on below, the term "detached" must be given a broad definition encompassing at least what has been disclosed by Appellant, for to not include what has been disclosed by Appellant within the boundaries of his/her own claim terminology would clearly be improper. Simply put, applicant's own invention should read on applicant's claim. Therefore, the term "detached" must encompass both "immediately adjacent" as disclosed by Appellant (see Appellant's Application Pg. 4 line 15, and Appellant's Figures), and "can turn independently of one another" (Pg. 5/ Line 2). It is for this reason that the Examiner has turned to the functional description of the prior art. In this case it is clear that both Appellant and Shinichi disclose gears which are "immediately adjacent", and therefore "axially detached", at least so far as can be determined upon a structural comparison of Appellants' and Shinichi's drawings. In addition it is also clear that both Appellants' and Shinichi's gears "can turn independently of on another". Therefore, it is also clear that Shinishi discloses "axially detached" as claimed, given at least the functional meaning intended by Appellant.

- *"However, a close inspection of FIG. 4 of Shinichi, in particular FIGs. 4a, 4c and 4d, fails to reveal the 'distinct separation' (or any separation between the gears 12, 13 for that matter) as alleged in the Official Action.*

The text of Shinichi discloses the opposite: 'together with each conventional gear having rigidity, a gear made of an elastic material is set side-by-side.' (See pages 1-2 of the full translation of Shinichi, the 'Industrial application field' section, first paragraph). Also, 'since gear (13) has a larger tooth thickness, as gears (11), (12) are engaged, it comes in close contact and rotates before gear (12) is engaged with gear (11).' (See pages 2-3 of the full translation of Shinichi, the 'Application examples' section, first paragraph). Thus, the text of Shinichi explicitly negates any argument that there exists a 'distinct separation' between the gears 12, 13. Here again, comparing the figures of Appellant, and Shinichi is useful. As discussed above, both the gears of Appellant and Shinichi are "immediately adjacent". The gears are clearly separate as in both instances the gears are made from different materials, rotate relative to their respective partner, and are in different "gears" as shown and described. Also in both instances the gears are referred to individually (Appellants gears 12 and 14, Shinichi's gears 12 and 13) clearly indicating they, in each instance, are "separate" gears, which therefore contain a "distinct separation".

- *"However, the fact that both the present application and Shinichi discloses that the respective gears are "immediately adjacent" does not necessarily mean that the gears of both documents must be the same - that is, detached from each other. As noted above, Shinichi explicitly discloses*

that the gears 12, 13 are formed as one gear. In contrast, the present claimed invention recites that the two gears are arranged on the shaft axially detached from each other. These are two very different physical structures.” While it may be true that "immediately adjacent" does not **necessarily** mean that the gears of both documents must be the same", **in this case it means precisely that.** Here Appellant again relies on the fact the Shinichi discloses the gears 12 and 13 are formed as one gear in an attempt to prove that the gears cannot be "axially detached from each other". However, here again Appellant's argument fails, because Appellant's own "Gear arrangement 10 including **a first gear 12 and a second gear 14**" (Pg. 4/ L4) are also "formed as one gear" (see "Gear Arrangement" Pg. 4/ L4). That is to say **both** Appellant and Shinichi disclose a plurality of gears, which are formed together to function as a single gear, both of which must be, and in fact are "axially detached" as claimed.

- *“However, this argument fails because it is comparing the function of the gears of the present application and the function of the gears in Shinichi, rather than comparing the structure of the claimed invention to the structure of Shinichi. Just because the function of the present claimed invention is alleged to be similar to that of Shinichi does not necessarily mean that the corresponding structures are identical. Whether the gears are detached from each other or integrated together is irrelevant to the*

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achievement of the specific function of the plastic gear yielding in the presence of sufficient forces." Clearly, Appellant's claimed invention and the Shinichi reference are structurally equivalent. A simple comparison of the Figures of Appellant's gears 12 and 14 with Figures of Shinichi's gears 12 and 13 reveals this to be so. That is to say, not a single claimed structural distinction exists! Also, when comparing the functions of both Appellant's gears and Shinichi's gears, no distinct differences between the two disclosures can be ascertained. That is to say the claimed invention is not only structurally indistinct from, and therefore anticipated by, the prior art, but in addition, is also functionally indistinct from the prior art.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Terence Boes/

Examiner, Art Unit 3656

Conferees:

/Marc Jimenez/

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/Richard WL Ridley/

Supervisory Patent Examiner, Art Unit 3656